

A. S. Friedman, Director
Division of International Programs

STATUS OF SPANISH PROGRAM AT(49-7)3019

Following the accidental dropping of nuclear devices in Spain near the village of Palomares (now known as the "Palomares" incident) an agreement (now known as the Hall-Otero or Otero-Hall agreement) was drawn up (1967) through an exchange between Mr. John Hall of the USAEC and Professor Jose Otero, Director of the Spanish JEN.

This agreement contains rather specific language concerning the responsibilities of the U. S. Atomic Energy Commission and Junta Nuclear Energia, Spain and an explicit agreement that a cooperative program will be carried out ". . . for as long as both parties mutually agree to be desirable on the basis of the observations as they are obtained." (Page 4, annex to letter, John Hall, USAEC to Professor Otero, JEN, Madrid, Spain, February 25, 1966).

Initial studies carried out to date under the four points of the agreement have not produced evidence that the consequent distribution of residual plutonium following the clean-up tended to accumulate in specific environmental systems nor that the health of the Spaniards in the area of the impact was either altered or endangered.

However, it may be possible to obtain some needed information on plutonium in the environment through further studies at Palomares (see enclosed recommendation (TNX) from Chester Richmond, University of California, Los Alamos). These studies would include determination of the movement and fate of plutonium in the pathways to man, plant uptake, resuspension, air concentrations, possible translocation in soil or water and the possible effects of irrigation on the movement of plutonium. It has also been suggested that there is a continuing need to investigate possible levels of plutonium in the people to document and understand better possible or alleged human implications. The studies would include chest counting and bioassay and estimates of the potential intake by man from various pathways (food, air, water).

To meet these objectives: 1) old and non-functional radiation measuring equipment in Madrid and Palomares is being replaced; 2) specific measurement of plutonium rather than measurements of gross alphas will be carried out; 3) the installation and calibration of a chest counter is to be done; and, among others 4) there is to be established a more active information exchange and technical liaison between the USAEC and JEN of Spain.

The Spanish have purchased from Los Alamos a new chest counter which has been sent to Spain, and it is planned to send Dr. Phil Dean from Los Alamos to advise the Spanish technical staff on its use in 1974. He will also offer assistance in regard to the use of an improved alpha spectrometer. It is also planned to send Dr. Chet Richmond of the LASL staff to assist in formulating a revised experimental program that can be of value to both the Spanish government and the United States.

James L. Liverman, Director
Division of Biomedical and
Environmental Research

Enclosure:
As stated

BP	BP	BP	DD	DIRECTOR
EBHarvey:geb	Minthorn	Carter	Burr	Liverman
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FM CHESTER R RICHMOND UNIV OF CALIF LOS ALAMOS SCI LAB LOS ALAMOS NM
TO ELMER HARVEY DBER/AEC WASHINGTON DC

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UNCLAS/N O N W D

THE FOLLOWING IS IN RESPONSE TO YOUR 6 DECEMBER
REQUEST FOR QUESTIONS RE PROJECT INDALO.

1. JUSTIFICATION FOR PROGRAM CONTINUATION

/A/ STANDING COMMITMENTS (HALL-OTERO) TO PROVIDE TECHNICAL AND
OTHER ASSISTANCE TO JUNTA DE ENERGIA NUCLEAR (JEN).

/B/ NEED TO OBTAIN INFORMATION ON PLUTONIUM IN ENVIRONMENT.
INCLUDES MOVEMENT AND FATE OF NUCLIDE, PATHWAYS TO MAN,
PLANT UPTAKE, RESUSPENSION, AIR CONCENTRATIONS, POSSIBLE
TRANSLOCATION IN SOIL OR WATER, EFFECTS OF IRRIGATION,
ETC. AREAS TO STUDY SUCH PHENOMENA ARE LIMITED. RESULTANT
DATA MAY BE USEFUL TO OTHER CONTAMINATION SITUATIONS.

/C/ NEED TO INVESTIGATE POSSIBLE LEVELS IN PEOPLE TO BETTER
DOCUMENT AND UNDERSTAND POSSIBLE HUMAN IMPLICATIONS (OR
ALLEGATIONS OF). INCLUDES CHEST COUNTING AND BIOASSAY,
ESTIMATES OF POTENTIAL INTAKE BY VARIOUS PATHWAYS.

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2. WHAT NEEDS TO BE DONE

/A/ REPLACE AGED AND NONFUNCTIONAL EQUIPMENT IN MADRID AND PALOMARES. MORE EMPHASIS NEEDED ON PLUTONIUM MEASUREMENT RATHER THAN GROSS ALPHA (IN PROGRESS).

/B/ INSTALL AND CALIBRATE NEW CHEST COUNTER (READY TO SHIP).

/C/ DESIGN PROGRAM TO MAXIMIZE ACCUMULATION OF INFORMATION ON ITEMS IB AND IC IN CONJUNCTION WITH SPANISH GOVERNMENT.

/D/ INITIATE PRIORITIES AND MAJOR GOALS AND ESTIMATE COST FOR CONTINUED RESEARCH AND DEVELOPMENT PROGRAM.

/E/ DECIDE ON POSSIBLE DURATION OF ASSISTANCE PROGRAM.

/F/ ESTABLISH MORE FORMAL AND ACTIVE INFORMATION EXCHANGE AND TECHNICAL LIAISON WITH UNITED STATES INVESTIGATORS AND JEN.

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